



## Filing Receipt

**Received - 2021-11-01 01:39:42 PM**  
**Control Number - 52373**  
**ItemNumber - 236**

## PROJECT NO. 52373

REVIEW OF WHOLESALE  
ELECTRIC MARKET DESIGN

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PUBLIC UTILITY COMMISSION  
OF TEXAS

### **POTOMAC ECONOMICS' MARKET REDESIGN COMMENTS**

Potomac Economics, the Independent Market Monitor (IMM) for the wholesale market in the Electric Reliability Council of Texas, Inc. (ERCOT) region, appreciates the opportunity to file these comments in Project No. 52373, *Review of Wholesale Electric Market Design*.

#### **A. Concerns with the LSE Obligation Proposal**

The Load-Serving Entity (LSE) Obligation proposal would establish specific capacity requirements to satisfy a specified planning reliability standard. Load-serving entities would satisfy these requirements by procuring capacity via bilateral contracts or through other self-supply methods. This proposal would functionally move away from an energy-only market in ERCOT, but without the central coordination provided by Independent System Operators (ISOs) in other regions. This raises significant concerns that are described in these comments.

##### **1. Market Power Concerns LSE Obligation Proposal**

The IMM has significant market power abuse concerns under this proposal because it lacks the centralized clearing where the conduct of market participants can be monitored and mitigated as needed. Entities with large generation market shares would likely to have both the ability and incentive to extract excess rents from LSEs and retail suppliers that would rely on contracting to satisfy this requirement and avoid the deficiency penalties. The lack of coordination and these market power concerns would likely result in substantial cost increases that are not efficient or competitive.

In the LSE Obligation proposal, if an LSE is unable to procure sufficient capacity to meet its requirement, ERCOT would use the penalty funds to procure capacity on its behalf, but no details are given on how ERCOT would do so. One approach would take the format of a residual or backstop auction. Depending on its design, a residual or backstop auction could have the benefit of reducing market power in the bilateral market by including some aspects of a well-designed central procurement, including mitigation measures, a must offer requirement for uncontracted capacity from pivotal generators, a reliability-based demand curve, and offer price rules. However, it is not clear how that structure would be preferable to centralized clearing in the first instance.

The IMM is also concerned that LSEs that have affiliated generation and LSEs with large retail market shares are put at a strong advantage versus smaller retailers and unaffiliated retailers. Large entities would have little incentive to sell to its competitors at competitive prices. Therefore, it is likely that these large, affiliated retailers will have access to contract terms that are unavailable to others, likely leading to further retail market consolidation.

## **2. Other Issues Related to the LSE Obligation Proposal**

The IMM also identifies four additional issues for the Commission to examine when considering the LSE Obligation, including:

- lack of reasonable performance incentives;
- existing contracts;
- administrative burdens on LSEs; and
- deliverability of accredited capacity.

First, the LSE Obligation proposal would establish performance requirements for capacity resources to be available during reliability events, and to be subject to penalties if they are not available. The sponsors clarified in the October market design workshop that such

penalties would be based on the capacity payments made to the supplier. This penalty is likely to be much lower than an efficient penalty that would reflect the cost to the system of the resource being unavailable. This cost is best reflected in ERCOT's energy prices during the reliability event, which include its shortage pricing under the ORDC. As discussed below, this is why the shortage hedge proposal provides an efficient performance incentive for the suppliers.

Second, depending on how quickly the LSE Obligation is implemented, its provisions could disrupt existing contracts. The extent to which this occurs would be highly predicated on the method for accrediting generators, as well as the quantity of capacity required, i.e., the reliability standard adopted. For existing contracts to count as accredited capacity, the contract would have to be tied to a defined individual generator. Existing firm contracts that are not physical would not be an acceptable substitute for accredited capacity and would necessarily not count toward the obligation.

The third issue is related to the administrative burden associated with the new process. One criticism often levied against centralized clearing by an ISO is of the administrative costs associated with the process. Virtually all of this burden exists under LSE Obligation proposal where ERCOT would be required to:

- Establish the capacity requirements for each LSE;
- Enforce the procurement requirements;
- Develop processes and rules to accredit each resource;
- Enforce performance obligations;
- Perform some type of residual auction when LSEs are deficient; and
- Mitigate market power.

The final additional issue is deliverability of energy from the accredited capacity. A bilateral market would not be able to guarantee that accredited capacity's energy output would be deliverable to load centers under peak conditions because no congestion analysis would be performed. Centralized markets can include zonal requirements and inter-zonal transport limits to represent transmission constraints between areas of the system. ERCOT has seen periodic cases where load pockets have existed (in the Dallas-Fort Worth, Houston, West Texas, and Rio Grande areas, at different times), and a bilateral LSE Obligation approach would not be able to consider these transmission limitations. Therefore, satisfying the LSE obligations will not ensure that ERCOT's reliability needs will be met.

#### **B. Advantages of the Shortage Hedge Proposal**

The shortage hedge proposal the IMM advanced in the market design workshop addresses most of the concerns described above. Despite the title of the proposal, it not a financial product. It is a physical product that is sold from accredited capacity resources, but establishes financial incentives linked to ERCOT's shortage pricing structure. We wish to clarify that the hedge should settle against ERCOT's day-ahead market energy prices, which include the expected value of real-time shortages. This will ensure that generators selling energy in the day-ahead market, which is a one-day forward contract, will not have two forward obligations settling against real-time prices.

As described in our prior description of the proposal, it will stabilize the fluctuations in revenues and costs that can occur in an energy-only market and provide better incentives for suppliers to invest in new resources and be available to the system when ERCOT needs them the most. In contrast to the LSE Obligation proposal, the Shortage Hedge proposal would:

- Allow for effective market power monitoring and mitigation since the hedges could be centrally procured by ERCOT; and
- Provide more efficient performance incentives for the generators and reduce incentives by suppliers to withhold resources to create real-time shortages.

### **C. Changes to the ORDC**

The IMM team continues to believe that reforms to the ORDC that are fundamentally sound and based on a reasonable VOLL offer the greatest benefits in achieving the Commission's goals. To understand the implications of proposed changes in the ORDC, it is valuable to estimate how they would have affected outcomes in recent years by performing a backcast.

The IMM team performed a backcast analysis with ORDC parameters primarily based on discussion at the Open Meeting on October 21, 2021. It is important to note that a backcast analysis cannot and does not account for behavior changes that will inevitably take place as a result of the changes, and therefore an analysis of this type should not be relied upon in its totality to predict future outcomes. For example, generators will likely make different unit commitment decisions when operating reserves are valued differently, changing the probabilities of reserve shortages and thus adder values. However, it can provide a limited but useful tool for comparison among options.

The analysis modeled changes to the Value of Lost Load (VOLL), price cap, and the Minimum Contingency Level (MCL), using the historical values of reserves for 2019 and 2020 (representing a high scarcity year and a low scarcity year, respectively) and the currently-posted summer 2022 values for  $\mu$  and  $\sigma$ . The results below show the average online ORDC adder and the average real-time energy costs, including the system  $\lambda$ , ORDC, reliability

deployment price adder components, as well as the increase or decrease in the average real-time energy cost compared to the reference (or “no changes”) case. It is apparent that there is a wide range of possible outcomes, and that small changes to the MCL have big impacts on the total costs.

The original ORDC proposal contained in the IMM’s October 15, 2021, filing was intended to shift revenues from shortage conditions to less scarce intervals but not to change the total revenues significantly, if at all. The IMM continues to recommend adjusting the VOLL upward rather than downward, with a price cap to meet the Commission’s goal of limiting the financial liabilities of market participants during scarcity conditions, and thus have included an additional case with the MCL remaining the same as it is today to illustrate the impact of moving the MCL under this type of construct.

VOLL (\$/MWh)	Price Cap (\$/MWh)	MCL (MW)	Average Online ORDC Adder (\$/MWh)		Average Cost to Load (\$/MWh)		Cost Change Compared to Reference (%)	
			2019	2020	2019	2020	2019	2020
9000*	-	2000	9.93	2.38	51.46	26.10	0%	0%
4500	-	2800	14.56	5.34	54.28	29.84	+5%	+14%
4500	-	3000	19.26	7.61	60.64	32.72	+18%	+25%
4500	-	3200	25.31	10.70	68.81	36.59	+34%	+40%
6000	-	2800	19.93	7.20	62.92	32.26	+22%	+24%
6000	-	3000	26.29	10.25	71.52	36.12	+39%	+38%
6000	-	3200	34.45	14.40	82.53	41.33	+60%	+58%
<b>20000</b>	5000	1430	8.61	1.67	46.26	25.20	<b>-10%</b>	<b>-3%</b>
<b>20000</b>	5000	2000	19.60	5.37	62.07	30.14	<b>+21%</b>	<b>+16%</b>

\*This is the reference case.

All ORDC calculations used the current values of mu and sigma for summer 2022

Consistent with our recommendation to adjust the ORDC in a manner that maximizes its consistency with the underlying reliability needs of the system, we recommend that the Commission avoid increasing the MCL. In the calculation of the ORDC, the MCL represents the

point at which ERCOT would shed load, which is why the price rises to \$9,000/MWh at that point. This backcast analysis shows that increasing the MCL will substantially increase costs and prices, but it does so in an artificial manner since ERCOT does not shed load at an MCL of 2,000 or higher.

Instead, we recommend that the Commission adopt a higher VOLL for calculating the ORDC, but cap the maximum price as shown in the last two rows of the figure. If the MCL is unadjusted, the backcast shows that costs would have risen by 21 and 16 percent in 2019 and 2020, respectively. Almost all of these net increases would occur in non-resource shortage hours. In 2019, which experienced more frequent shortages, costs would have fallen by almost 8 percent in shortage hours and risen by more than 28 percent in non-shortage hours. In 2020, the entire 16 percent increase occurs in non-shortage hours. These shifts are consistent with the Commission's objective to reduce the ERCOT market's reliance on emergency conditions for producing adequate revenues for its generators.

Finally, unblending the ORDC to return it to the twenty-four curves previously used (representing six time-of-day blocks and four seasons) would be a positive change to ensure that the value of reserves is appropriately reflected as conditions change on the system. The historical differences between expected and actual operating reserves differ significantly depending time and season. Because these are averages, blended curves overvalue reserves in conditions where there is a high degree of certainty. Regarding financial impacts, it is highly dependent on the conditions of the year studied but will tend to reduce overall costs in an average year.



#### **D. Conclusion**

The IMM appreciates the opportunity to share these comments and looks forward to further participation in the market redesign effort.

Respectfully submitted,

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**EXECUTIVE SUMMARY OF POTOMAC ECONOMICS' MARKET REDESIGN  
COMMENTS**

Potomac Economics, the IMM for the wholesale market in the ERCOT region, provides the following comments regarding potential changes to the ERCOT market design:

**1. LSE Obligation Proposal Concerns**

The IMM identifies the following concerns with the Load-Serving Entity (LSE) Obligation proposal:

- Market power abuse;
- Performance incentives;
- Existing contracts;
- Administrative burdens on LSEs; and
- Deliverability of accredited capacity.

The LSE Obligation proposal raises market power abuse concerns because procurement would take place in the bilateral market with no centralized clearing where sufficient and effective market monitoring and mitigation could occur. Further, entities that have affiliated generation and entities with large retail market shares would be put at a strong advantage versus smaller retailers/unaffiliated retailers, potentially leading to further retail market consolidation. For these reasons, the IMM cautions against this approach as presented. A residual auction concept could partially mitigate these concerns but would require many of the features of a full centralized market, including must-offer requirements, a reliability-based demand curve, and offer price rules.

The IMM also identifies four additional issues for the Commission to examine when considering the LSE Obligation. Penalties would be based on the obligation payments made to the supplier, which are likely to be much lower than an efficient penalty that would reflect the cost to the system of the resource being unavailable. Existing contracts, even firm contracts, would not necessarily translate into accredited capacity unless they were tied to specific resources. The LSE Obligation would have similar administrative burdens of procuring accredited capacity as a centralized market. And finally, the bilateral nature of the LSE Obligation would prevent consideration of deliverability of the energy from accredited capacity under peak demand conditions.

## 2. Advantages of the Shortage Hedge Proposal

The shortage hedge proposal the IMM advanced in the market design workshop addresses most of the concerns described above. It is a physical product that is sold from accredited capacity resources, but establishes financial incentives linked to ERCOT's shortage pricing structure.

3. **Changes to the Operating Reserve Demand Curve (ORDC) and the System-Wide Offer Cap (SWCAP):** The IMM performed a backcast of selected combinations of proposed ORDC parameters and provides the impact summary below. Backcasts are imperfect methods of assessing impact due to neglecting accompanying behavioral changes, but they provide some amount of information that can be used to compare the different proposals.

VOLL (\$/MWh)	Price Cap (\$/MWh)	MCL (MW)	Average Online ORDC Adder (\$/MWh)		Average Cost to Load (\$/MWh)		Cost Change Compared to Reference (%)	
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20000	5000	2000	19.60	5.37	62.07	30.14	+21%	+16%

\*This is the reference case.

We recommend that the Commission adopt a higher VOLL for calculating the ORDC, but cap the maximum price as shown in the last two rows of the figure above. If the MCL is unadjusted, the backcast shows that costs would have risen by 21 and 16 percent in 2019 and 2020, respectively. Almost all of these net increases would occur in non-resource shortage hours. These shifts are consistent with the Commission's objective to reduce the ERCOT market's reliance on emergency conditions for producing adequate revenues for its generators. We also support unblending the ORDC to return it to the twenty-four curves previously used (representing six time-of-day blocks and four seasons) as it would be a positive change to ensure that the value of reserves is set appropriately.